



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,697	09/26/2003	Eshwari P. Komarla	42P16549	9222
8791	7590	08/28/2007		
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			EXAMINER	
1279 OAKMEAD PARKWAY			CHU, GABRIEL L	
SUNNYVALE, CA 94085-4040			ART UNIT	PAPER NUMBER
			2114	
			MAIL DATE	DELIVERY MODE
			08/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/672,697		KOMARLA ET AL.	
	Examiner		Art Unit	
	Gabriel L. Chu		2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20040202</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is misspelled. "BALDE" is "BLADE".

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-5, 7-12, 14 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6622260 to Marisetty et al. in view of US 6971044 to Geng et al.** Notably, Marisetty qualifies as prior art unit 102(a) in addition to 102(e).
4. Referring to claim 1, 8, Marisetty discloses responsive to a platform error at a local node of a platform, performing error recovery at a processor abstraction layer (PAL); if the platform error is not resolved at the PAL, performing error recovery at a system abstraction layer (SAL) (See figure 4).

Although Marisetty does not specifically disclose *if the platform error is not resolved at the PAL determining if there is a peer node with an available network interface card (NIC), and if there is a peer node with an available NIC, sending a media access control (MAC) address of the local node to the peer node so that the peer node can handle operations for the local node, and disabling the MAC address of the local*

Art Unit: 2114

node; if the platform error is resolved by the SAL, enabling the local node with the MAC address of the local node, the local node to resume normal operation, performing MAC address failover for a failed node is known in the art, as is failing back to a recovered failed node in response to the recovery of that failed node. An example of this is shown by Geng, from line 61 of column 19, "When in filtered mode, there will be one externally visible MAC address to which external nodes transmit packets for a set of virtual network interfaces. If that adapter goes down, then not only do the virtual network interfaces have to fail over to the other control node, but the MAC address must fail over too so that external nodes can continue to send packets to the MAC address already in the ARP caches. Under one embodiment of the invention, when a failed control node recovers, a single MAC address is manipulated and the MAC address does not have to be remapped on recovery." Further, from line 45 of column 20, "When receive has failed over and the failed control node recovers, only transmissions will be moved over to the recovered control node. Thus, the algorithm for recovery on virtual network interfaces is to always move transmissions to the recovered control node and leave receive processing where it is." Further, from line 46 of column 10 of Geng, "The RCLAN layer 315 is responsible for handling the redundancy, fail-over and load balancing logic of the redundant interconnect NICs 107." A person of ordinary skill in the art at the time of the invention could have been motivated to fail over a MAC address because, as shown by Marisetty, an attempt to correct may fail and while failed, a resource is not available, and further, Geng shows high availability by providing such failover.

5. Referring to claim 2, 9, Marisetty in view of Geng discloses if the SAL does not resolve the platform error, further comprising: performing error recovery at the operating system (OS) level (Marisetty, figure 4); and

if the platform error is resolved at the OS level, enabling the local node with the MAC address of the local node, the local node to resume normal operation (Marisetty, recovery and failing back.).

6. Referring to claim 3, 10, Marisetty in view of Geng discloses if the platform error is not resolved at the OS level, further comprising: resetting the local node (Marisetty, figure 4, "reset". Geng, "recovery".); and

"after" re-booting the local node, obtaining "state information" from the operating system (For example, from line 64 of Geng, "All the connection pairs established by the node persist as long as the operating system remains up. Establishment of a connection pair to simulate an Ethernet connection is intended to be analogous to, and as persistent as, physically plugging in a cable between network interface cards. If a node's defined configuration changes while its operating system is running, then applicable redundant Virtual Interface connection pairs will be established or discarded at the time of the change.").

7. Referring to claim 4, 11, Marisetty in view of Geng discloses enabling the local node with the MAC address of the local node, the local node to resume normal operation (Marisetty, recovery and failing back.).

8. Referring to claim 5, 12, Marisetty in view of Geng discloses extracting an error log; and generating an event log (From line 51 of column 6 of Marisetty, "The log that

Art Unit: 2114

the error handling routine of SAL 202 generates is in a predetermined format and may be accessed by the OS 203 or other diagnostic software. The error handling routine of SAL 202 logs processor and platform error information, saves processor and platform state information, performs hardware specific corrections, clears the error log and re-enables future information collection, halts the processor or platform as necessary, and handles multi processor situations. The processor and platform error information is logged in either a CMC log or MCA log. The error handling routine of SAL 202 can use the PAL 201 set of procedures to obtain additional information from the processor or platform. CMC logs store information about errors corrected by hardware or firmware. For corrected errors, intervention by the OS 203 is not required for error handling, only PAL and SAL will do most of the work and return back to the interrupted processes, but OS 203 can be notified of the corrected error through a low priority corrected machine check (CMC) signal or event. The system software can generate the CMC event by polling for a flag or by programming the hardware to generate an interrupt.”).

9. Referring to claim 7, 14, Marisetty in view of Geng discloses the peer node utilizes a back-up NIC as the available NIC (From line 46 of column 10 of Geng, “The RCLAN layer 315 is responsible for handling the redundancy, fail-over and load balancing logic of the redundant interconnect NICs 107.”).

10. Claims 6, 13 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6622260 to Marisetty et al. in view of US 6971044 to Geng et al. as applied to claim 1, 8 above, and further in view of US 20040054780 to Romero.

Art Unit: 2114

11. Referring to claim 6, 13, although Marisetty in view of Geng discloses does not specifically disclose that the computing architecture may be implemented using blade servers as the nodes, this is well known in the art. An example of this is shown by Romero from paragraph 9, "Like more traditional clustered servers, blade servers can also be managed to include load balancing and failover capabilities. Load balancing is dividing the amount of work that a blade server has to do between two or more blade servers so that more work gets done in the same amount of time and, in general, all users get served faster. Load balancing may be implemented with hardware, software, or a combination of both. Typically, load balancing is the main reason for blade server clustering. Failover is a backup operational mode in which the functions of a primary blade server are assumed by a secondary blade server when the primary blade server becomes unavailable through either future or scheduled down time." A person of ordinary skill in the art at the time of the invention could have been motivated to use a blade architecture because, as from paragraph 8 of Romero, "A blade server is sometimes referred to as a "high-density server" and is typically used in a clustering of servers that are dedicated to a single task, such as file sharing, web page serving and caching, SSL encrypting or web communication, transcoding of web page content for smaller displays, and audio and video content streaming. A blade server usually comes with an operating system and is normally dedicated to a single application or application component. The storage required by the blades could be embedded in the blade, or available externally via standard connectivity mechanisms such as Storage Area Networks (SAN), or Network Attached Storage (NAS). The operating system and

Art Unit: 2114

applications required to operate the blades can be loaded from the storage device(s) available to the blades.”, and provides for load balancing, which is also shown in Geng, and provides an environment for failover, also shown in Geng.

12. Claims 15-28 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6622260 to Marisetty et al. in view of US 6971044 to Geng et al. and US 20040054780 to Romero.

13. Referring to claim 15, 16, 22, 23, Marisetty discloses a processor; a memory coupled to the processor; wherein responsive to a platform error at the node, error recovery is performed at a processor abstraction layer (PAL); error recovery is further performed at a system abstraction layer (SAL) (See figure 4).

Although Marisetty does not specifically disclose *a network interface card (NIC) coupled to the processor to provide for network communications to a peer node and if the platform error is not resolved at the PAL, a media access control (MAC) address of the server blade is sent to the peer server blade so that the peer server blade can handle operations for the server blade, and the MAC address of the server blade is disabled and if the platform error is resolved by the SAL, the server blade is enabled with the MAC address of the server blade, and the server blade resumes normal operation*, performing MAC address failover for a failed node is known in the art, as is failing back to a recovered failed node in response to the recovery of that failed node. An example of this is shown by Geng, from line 61 of column 19, “When in filtered mode, there will be one externally visible MAC address to which external nodes transmit packets for a set of virtual network interfaces. If that adapter goes down, then not only

Art Unit: 2114

do the virtual network interfaces have to fail over to the other control node, but the MAC address must fail over too so that external nodes can continue to send packets to the MAC address already in the ARP caches. Under one embodiment of the invention, when a failed control node recovers, a single MAC address is manipulated and the MAC address does not have to be remapped on recovery." Further, from line 45 of column 20, "When receive has failed over and the failed control node recovers, only transmissions will be moved over to the recovered control node. Thus, the algorithm for recovery on virtual network interfaces is to always move transmissions to the recovered control node and leave receive processing where it is." Further, from line 46 of column 10 of Geng, "The RCLAN layer 315 is responsible for handling the redundancy, fail-over and load balancing logic of the redundant interconnect NICs 107." A person of ordinary skill in the art at the time of the invention could have been motivated to fail over a MAC address because, as shown by Marisetty, an attempt to correct may fail and while failed, a resource is not available, and further, Geng shows high availability by providing such failover.

Although Marisetty in view of Geng does not disclose that the computing architecture may be implemented using blade servers as the nodes, this is well known in the art. An example of this is shown by Romero from paragraph 9, "Like more traditional clustered servers, blade servers can also be managed to include load balancing and failover capabilities. Load balancing is dividing the amount of work that a blade server has to do between two or more blade servers so that more work gets done in the same amount of time and, in general, all users get served faster. Load balancing

Art Unit: 2114

may be implemented with hardware, software, or a combination of both. Typically, load balancing is the main reason for blade server clustering. Failover is a backup operational mode in which the functions of a primary blade server are assumed by a secondary blade server when the primary blade server becomes unavailable through either future or scheduled down time." A person of ordinary skill in the art at the time of the invention could have been motivated to use a blade architecture because, as from paragraph 8 of Romero, "A blade server is sometimes referred to as a "high-density server" and is typically used in a clustering of servers that are dedicated to a single task, such as file sharing, web page serving and caching, SSL encrypting or web communication, transcoding of web page content for smaller displays, and audio and video content streaming. A blade server usually comes with an operating system and is normally dedicated to a single application or application component. The storage required by the blades could be embedded in the blade, or available externally via standard connectivity mechanisms such as Storage Area Networks (SAN), or Network Attached Storage (NAS). The operating system and applications required to operate the blades can be loaded from the storage device(s) available to the blades.", and provides for load balancing, which is also shown in Geng, and provides an environment for failover, also shown in Geng.

14. Referring to claim 17, 24, Marisetty in view of Geng and Romero discloses if the SAL does not resolve the platform error, further comprising: performing error recovery at the operating system (OS) level (Marisetty, figure 4); and

if the platform error is resolved at the OS level, enabling the local node with the

Art Unit: 2114

MAC address of the local node, the local node to resume normal operation (Marisetty, recovery and failing back.).

15. Referring to claim 18, 25, Marisetty in view of Geng and Romero discloses if the platform error is not resolved at the OS level, further comprising: resetting the local node (Marisetty, figure 4, "reset". Geng, "recovery".); and

"after" re-booting the local node, obtaining "state information" from the operating system (For example, from line 64 of Geng, "All the connection pairs established by the node persist as long as the operating system remains up. Establishment of a connection pair to simulate an Ethernet connection is intended to be analogous to, and as persistent as, physically plugging in a cable between network interface cards. If a node's defined configuration changes while its operating system is running, then applicable redundant Virtual Interface connection pairs will be established or discarded at the time of the change.").

16. Referring to claim 19, 26, Marisetty in view of Geng and Romero discloses enabling the local node with the MAC address of the local node, the local node to resume normal operation (Marisetty, recovery and failing back.).

17. Referring to claim 20, 27, Marisetty in view of Geng and Romero discloses extracting an error log; and generating an event log (From line 51 of column 6 of Marisetty, "The log that the error handling routine of SAL 202 generates is in a predetermined format and may be accessed by the OS 203 or other diagnostic software. The error handling routine of SAL 202 logs processor and platform error information, saves processor and platform state information, performs hardware specific

Art Unit: 2114

corrections, clears the error log and re-enables future information collection, halts the processor or platform as necessary, and handles multi processor situations. The processor and platform error information is logged in either a CMC log or MCA log. The error handling routine of SAL 202 can use the PAL 201 set of procedures to obtain additional information from the processor or platform. CMC logs store information about errors corrected by hardware or firmware. For corrected errors, intervention by the OS 203 is not required for error handling, only PAL and SAL will do most of the work and return back to the interrupted processes, but OS 203 can be notified of the corrected error through a low priority corrected machine check (CMC) signal or event. The system software can generate the CMC event by polling for a flag or by programming the hardware to generate an interrupt.”).

18. Referring to claim 21, 28, Marisetty in view of Geng and Romero discloses the peer node utilizes a back-up NIC as the available NIC (From line 46 of column 10 of Geng, “The RCLAN layer 315 is responsible for handling the redundancy, fail-over and load balancing logic of the redundant interconnect NICs 107.”).

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See notice of references cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel L. Chu whose telephone number is (571) 272-

Art Unit: 2114

3656. The examiner can normally be reached on weekdays between 8:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Gabriel L. Chu
Primary Examiner
Art Unit 2114

gc